

## PATENT ABSTRACTS OF JAPAN

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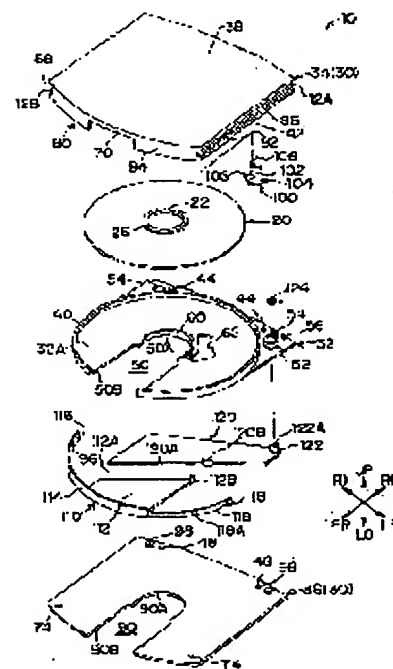
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## (54) DISK CARTRIDGE

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a disk cartridge which has improved impact resistance in the case of its dropping down.

**SOLUTION:** The disk cartridge is provided with an upper shell and a lower shell for housing a disk-like disk medium rotatably and an opening formed at the lower shell for accessing the disk medium. A shutter member is provided outside of the lower shell for opening and closing. A cover plate part having the opening for accessing the disk medium is formed to house the shutter member movably. The upper shell and the cover plate part are joined and the lower shell is held between the upper shell and the cover plate part.



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CLAIMS

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[Claim(s)]

[Claim 1] The upper shell which holds disc-like disk media pivotable, and bottom shell, Opening for access to said disk media prepared in said bottom shell, The shutter member which is prepared in the outside of said bottom shell, and opens and closes said opening, In the disk cartridge equipped with covering Itabe who opening for access to said disk media is formed, and holds said shutter member movable between said bottom shell The disk cartridge characterized by constituting said bottom shell so that it may hold among said upper shell and said covering Itabe while constituting possible [ junction of said upper shell and said covering Itabe ].

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[Translation done.]

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention holds the disc-like disk media used as record playback media, such as an information processor, pivotable, and relates to the disk cartridge which prevents invasion of dust etc.

[0002]

[Description of the Prior Art] For example, disc-like disk media, such as an optical disk and a magneto-optic disk, are used as a record playback medium for computers which has portability. Playback of the information which informational record was made by the pit formation by pigment layer decomposition of a recording surface, a phase change, magnetization, etc., or was recorded on the recording surface by laser light being irradiated based on the reflection factor of laser light or the difference of a polarization angle is performed rotating, where drive equipment is loaded, in case such disk media perform record or playback.

[0003] Moreover, by such disk media, in order to raise storage capacity, shortening wavelength of laser light irradiated to a recording surface is proposed. When performing informational record or playback using the laser light (for example, purple-blue color laser) of this short wavelength, in order to control attenuation of the laser light by the cover layer which protects the recording surface of disk media, it is necessary to make thickness of this cover layer thin. When thickness of a cover layer is made thin, the aperture of the laser light in the front face (exposure to the exterior) of a cover layer becomes small, and it becomes impossible thus, to disregard the effect of the dust adhering to a cover layer front face etc.

[0004] For this reason, the disk cartridge which holds disk media in a case and prevents adhesion of the dust to disk media etc. is adopted. Such a disk cartridge is equipped with opening for exposing outside the center hall section prepared in the core of disk media, and a part of recording surface (cover layer), and the shutter member which open and close this opening, and is constituted.

[0005] Thereby, in the disk cartridge, adhesion of invasion of the dust into a disk cartridge etc., i.e., the dust to disk media etc., is prevented by usually blockading opening by the shutter member, it is opening opening with loading to drive equipment, and contiguity (exposure of laser light) of the laser head to maintenance and a recording surface with the rotation spindle shaft of the center hall section is enabled.

[0006]

[Problem(s) to be Solved by the Invention] The above disk cartridges have held disk media in the interior of the case which comes to join the upper shell formed in the shape of an abbreviation tray, and bottom shell pivotable. And further thin plate-like covering Itabe was joined to the bottom shell, and the shutter member is held between the covering Itabe and bottom shell.

[0007] However, when having dropped the disk cartridge as it is such a configuration, there was a trouble that the shock resistance of the disk cartridge was weak. Then, this invention aims at obtaining the disk cartridge which raises the shock resistance at the time of fall of a disk cartridge etc.

[0008]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the disk cartridge according to claim 1 concerning this invention The upper shell which holds disc-like disk media pivotable, and bottom shell, Opening for access to said disk media prepared in said bottom shell, The shutter member which is prepared in the outside of said bottom shell, and opens and closes said opening, In the disk cartridge equipped with covering Itabe who opening for access to said disk media is formed, and holds said shutter member movable between said bottom shell While constituting possible [ junction of said upper shell and said covering Itabe ], it is characterized by constituting said bottom shell so that it may hold among said upper shell and said covering Itabe.

[0009] If it is made such a configuration, the shock resistance at the time of fall of a disk cartridge can be

raised, and the dimensional change by the dimension error, and a temperature change and humidity of bottom shell can be absorbed.

[0010] In addition, while constituting said upper shell and said covering Itabe from this quality of the material, it is desirable for said upper shell and said covering Itabe to constitute said bottom shell from different material. When upper shell and covering Itabe are constituted from the hard quality of the material, for example and the slipping nature of a shutter member constitutes bottom shell from the good quality of the material, while being able to raise the shock resistance at the time of fall of a disk cartridge according to this, the sliding nature of a shutter member can be raised. And since upper shell and covering Itabe consist of these quality of the materials, the effect on the configuration by expansion contraction of the curvature of a disk cartridge etc. can be eased also at the time of preservation (those with a temperature change).

[0011] Moreover, it is desirable to prepare the slot which becomes the side attachment wall of said upper shell with the object for guidance at the time of loading to drive equipment. According to this, the location precision of the disk cartridge at the time of loading to drive equipment can be raised.

[0012]

[Embodiment of the Invention] It explains to a detail based on the example which shows the disk cartridge concerning the gestalt of operation of this invention hereafter to drawing 1 thru/or drawing 5. In addition, the loading (insertion) direction to the drive equipment of the expedient top of explanation and a disk cartridge is made into front (FR), and explanation is hereafter given on the basis of it as the back (RE), above (UP), down (LO), the left (LE), and the right (RI).

[0013] First, if the outline of a disk cartridge 10 is explained, as drawing 1 shows, the disk cartridge 10 is formed in the shape of a flat case as a whole, and the disc-like disk media 20 as an information record playback medium are held in the interior. And while front end section 10A curves in the shape of radii, it considers as the shape of a polygon in which back end section 10B cut and lacked the right-and-left corner, and order length is greatly formed a little to right-and-left length. Thereby, the disk cartridge 10 has the composition that loading to the mistaken drive equipment from a direction is not permitted while recognition of the loading direction to drive equipment (illustration abbreviation) is easily enabled from an appearance.

[0014] Moreover, 1st guide slot 12A and 2nd guide slot 12B are prepared in the side face of right and left of a disk cartridge 10, respectively, and it is carried out to the guidance at the time of loading to drive equipment. In addition, to 1st guide slot 12A, the lock release lever 104 and the shutter engagement section 18 which are mentioned later have projected. And near the back end section 10B of the inferior surface of tongue of a disk cartridge 10, two holes 16 for location regulation are formed, and it is carried out to location regulation (detection) of the disk cartridge 10 in drive equipment.

[0015] Furthermore, it applies to the longitudinal-direction center section of the front wall section of front end section 10A from the inferior-surface-of-tongue center section of the disk cartridge 10, opening 14 is formed, and it is carried out to access to the disk media 20 at the time of disk media 20 use. That is, at the time of use of the disk media 20, it is the configuration that insert the rotation spindle shaft and the record reproducing head (for example, laser head) of drive equipment, and they approach from this opening 14, and at the time of un-using [ of the disk media 20 ] it, this opening 14 is blockaded by the 1st shutter member 110 and the 2nd shutter member 120 which were held in the disk cartridge 10, and invasion of the dust into a disk cartridge 10 etc. is prevented.

[0016] The drive equipment is loaded with it from the front (the direction of arrow-head FR), the disk cartridge 10 of such a configuration being guided at drive equipment in 1st guide slot 12A and 2nd guide slot 12B. And while opening 14 is wide opened in connection with this, with the hole 16 for location regulation, it was location-detected, and will be positioned by drive equipment, and playback of the information recorded on record and the disk media 20 of the information on the disk media 20 within drive equipment will be performed.

[0017] Next, if the detail configuration of this disk cartridge 10 is explained, as shown in drawing 2 and the decomposition perspective view of drawing 3, the disk cartridge 10 is equipped with the disk media 20. Covering protection of the recording surface to which the disk media 20 have the pin center, large hole 22 in a core and which was formed disc-like and formed in the inferior surface of tongue 24 is carried out in the cover layer (illustration abbreviation). The annular pin center, large core section 26 is attached in the pin center, large hole 22 of these disk media 20 by adhesion etc., and this pin center, large core section 26 is engagement-held or adsorption held at the point of the rotation spindle shaft of drive equipment.

[0018] The disk media 20 are held in the case 30, and the case 30 is formed of junction with inferior-surface-of-tongue Itabe 36 as covering Itabe, and top-face Itabe 34 as upper shell. And base Itabe 32 as

bottom shell is held in the case 30, the disk media 20 are held between base Itabe 32 and top-face Itabe 34, and the 1st shutter member 110 and the 2nd shutter member 120 are held between base Itabe 32 and inferior-surface-of-tongue Itabe 36.

[0019] While anterior part is formed in the shape of a semicircle, a posterior part consists of the sheet metal formed in the shape of [ which is circumscribed to a residual semicircle part ] an abbreviation rectangle, and, as for base Itabe 32, the predetermined height set-up of the cylinder wall 40 is carried out towards the upper part in the periphery of the semicircle part ahead of this base Itabe 32, and a back semicircle part. In addition, let the bore of this cylinder wall 40 be a major diameter a little than the outer diameter of the disk media 20.

[0020] Moreover, the bores 54 and 44 of a major diameter are drilled a little from them, respectively, and near the left-hand side bore 54, the cylinder-like shutter boss 52 is formed and it is carried out to support of the 2nd shutter member 120 so that the cylindrical projection 64 and cylinder 94 which were set up by top-face Itabe 34 who mentions later may be inserted in back end both the corners of base Itabe's 32 top-face 32A with allowances. And further, near the shutter boss 52, the spring attaching part 56 is formed and it is carried out to end maintenance of a torsion spring 124.

[0021] Moreover, the opening 50 which constitutes the opening 14 of a disk cartridge 10 is formed in base Itabe 32. Hub hole 50A of the circle configuration made into the major diameter from the outer diameter of the pin center, large core section 26 of the disk media 20 and window part 50B for the record reproducing heads of the shape of an abbreviation rectangle which also cut and lacked the cylinder wall 40 while resulting in bilateral symmetry to that periphery front end section in accordance with radial [ of base Itabe's 32 semicircle part ] are formed successively, and this opening 50 is constituted. In addition, hub hole 50A and window part 50B for the record reproducing heads are not limited to what is formed successively and constituted, and may be formed separately.

[0022] Moreover, the rib 60 with which the top-face 32A side was made heavy-gage is formed in base Itabe's 32 hub hole 50A periphery, and the shutter guidance hole 62 with which piece of press 112B of the 1st shutter member 110 and pressed piece 120B of the 2nd shutter member 120 are inserted is formed near the left-hand side of base Itabe's 32 hub hole 50A.

[0023] Moreover, as shown in drawing 3, crevice 32C of an approximate circle configuration is formed in base Itabe's 32 inferior-surface-of-tongue 32B, and it is carried out to hold of the shutter body 112 of the 1st shutter member 110, and the 2nd shutter member 120, and actuation space formation. That is, after inferior-surface-of-tongue Itabe 36 has contacted inferior-surface-of-tongue 32B, flat space is formed between inferior-surface-of-tongue Itabe 36 and crevice 32C.

[0024] As mentioned above, the disk media 20 are held inside base Itabe's 32 explained cylinder wall 40. The disk media 20 are laid on a rib 60, where the pin center, large core section 26 is inserted into hub hole 50A, and contact in base Itabe's 32 top-face 32A and the cylinder wall 40 is prevented. Base Itabe's 32 upper part is covered with this condition by top-face Itabe 34.

[0025] Top-face Itabe 34 has the monotonous section 38 which the back end section cut and lacked the right-and-left corner, and was made into the shape of a polygon while the front end section of a rectangle-like plate curves in the shape of radii. The monotonous section 38 order length is enlarged a little to right-and-left length, and the annular projection 66 corresponding to base Itabe's 32 rib 60 is formed in the center section of inferior-surface-of-tongue 38A of this monotonous section 38, and it is carried out to contact prevention of the disk media 20 to inferior-surface-of-tongue 38A.

[0026] Moreover, the circular sulcus 68 corresponding to base Itabe's 32 cylinder wall 40 is formed in inferior-surface-of-tongue 38A of the monotonous section 38. While this circular sulcus 68 is formed possible [ insertion of the cylinder wall 40 ] as a whole, a front part is formed broadly a little and insertion of the circular guide wall 114 of the 1st shutter member 110 mentioned later of it is attained.

[0027] Furthermore, the outer wall 80 is set up by the periphery of the monotonous section 38 towards the lower part. This outer wall 80 is made into the height corresponding to the total thickness of a disk cartridge 10, and consists of the front wall 84, a left wall 86, a right wall 88, and a posterior wall of stomach 72. The front wall 84 is curving corresponding to the curve configuration of the monotonous section 38 front end, and constitutes front end section 10A of a disk cartridge 10. And the posterior wall of stomach 72 constitutes back end section 10B of a disk cartridge 10.

[0028] Moreover, the window part 70 of the shape of a rectangle which the lower part carried out predetermined die-length opening, cut, and lacked is formed in the center section of the front wall 84, and it is carried out to the opening 14 configuration of a disk cartridge 10. That is, the width of face of that longitudinal direction is equivalent to the width of face of base Itabe's 32 window part 50B for the record

reproducing heads, and this window part 70 constitutes a part of opening 14 of a disk cartridge 10.

[0029] Moreover, along with the cross direction, 1st guide slot 12A and 2nd guide slot 12B are formed in the external surface of a left wall 86 and a right wall 88, respectively. In addition, in \*\* guide slot 12A of a left wall 86, the lock release lever hole 92 and the puncturing 42 in which the shutter engagement section 18 projects are formed, and boss 58A for locking lever 100 support and maintenance hole 58B for end maintenance of a torsion spring 108 are prepared in inferior-surface-of-tongue 38A of the about 92 lock release lever hole monotonous section 38.

[0030] Moreover, the shutter guide rail (illustration abbreviation) in which the shutter cash-drawer section 118 of the 1st shutter member 110 mentioned later is inserted is formed in the upper and lower sides on the backside [ puncturing / 42 / of 1st guide slot 12A ]. And the wall 82 is formed inside [ anterior part ] the outer wall 80, and the lower limit side of this wall 82 is made into the contact side with the top face of inferior-surface-of-tongue Itabe 36 by which fitting is carried out to an outer wall 80.

[0031] Moreover, in inferior-surface-of-tongue 38A of the monotonous section 38, the cylindrical projection 64 which it is made to insert in the location corresponding to base Itabe's 32 bore 54 is set up towards a lower part, the cylinder 94 which it is made to insert in the location corresponding to a bore 44 is set up towards a lower part, and it is \*\*\*\*\*. And near the wall 82, the cylinder 78 is further set up by the inferior-surface-of-tongue 38A anterior part. In addition, screw holes 94A and 78A are formed in the core of these cylinders 94 and 78.

[0032] On the other hand, the configuration of an appearance is formed in top-face Itabe's 34 monotonous section 38, and abbreviation isomorphism-like plate-like, and, as for inferior-surface-of-tongue Itabe 36 arranged under base Itabe 32, the periphery is made a little smaller than the monotonous section 38. And while the bore 98 corresponding to the outer diameter of the cylindrical projection 64 of top-face Itabe 34 is formed in the location corresponding to the cylindrical projection 64, the conical-like stomata 48 and 74 are formed in the location corresponding to the cylinder 78 prepared in the anterior part of inferior-surface-of-tongue 38A of the monotonous section 38, and the cylinder 94 prepared in back end both corners, respectively.

[0033] Therefore, while top-face Itabe's 34 cylindrical projection 64 is fitted in the bore 98, inferior-surface-of-tongue Itabe 36 After the top face has contacted top-face Itabe's 34 wall 82 and cylinders 78 and 94 at base Itabe's 32 inferior-surface-of-tongue 32B (part except crevice 32C) list Fitting maintenance is carried out at the inner skin of top-face Itabe's 34 outer wall 80, and as drawing 6 shows, it is joined by top-face Itabe 34 in one by inserting screws 46 and 76 in stomata 48 and 74, and being screwed in screw holes 94A and 78A.

[0034] In addition, at this time, the cylinder wall 40 is inserted into top-face Itabe's 34 circular sulcus 68, a cylinder 94 and the cylindrical projection 64 are inserted in bores 44 and 54, respectively, and base Itabe 32 is held in a case 30. And let the interior of the cylindrical projection 64 be the hole 16 for location regulation of a disk cartridge 10.

[0035] Furthermore, base Itabe's 32 opening 50 and the abbreviation isomorphism-like opening 90 are formed in the location corresponding to opening 50 at inferior-surface-of-tongue Itabe 36. That is, opening 90 consists of hub hole 90A corresponding to hub hole 50A, and window part 90B for the record reproducing heads corresponding to window part 50B for the record reproducing heads, and constitutes the opening 14 of a disk cartridge 10.

[0036] Thus, base Itabe's 32 opening 50, top-face Itabe's 34 window part 70, and the opening 90 of inferior-surface-of-tongue Itabe 36 are open for free passage, the opening 14 of a disk cartridge 10 is formed, and a case 30 is formed. And the shutter device in which the opening 14 is blockaded or opened is established in the case 30. In addition, when explaining each component of a shutter device using the direction of front and rear, right and left below, it shall be fundamentally based in the direction in the state of obstruction of opening 14.

[0037] The shutter device is equipped with the 1st shutter member 110, and this 1st shutter member 110 is equipped with the shutter body 112 which mainly blockades base Itabe's 32 window part 50B for the record reproducing heads. The shutter body 112 consists of thin plates, such as resin material and a metal plate, order length is the radius and abbreviation identitas of the cylinder wall 40 of base Itabe 32 in plane view, width of face is larger than the width of face of window part 50B for the record reproducing heads a little, and the front end section is formed in the abbreviation trapezoidal shape corresponding to the cylinder wall 40 which the right rear corner cut aslant and lacked while it was circular. And the thickness is made smaller than the depth of crevice 32C, i.e., the height from base Itabe's 32 inferior-surface-of-tongue 32B to the top face of inferior-surface-of-tongue Itabe 36.

[0038] Moreover, piece of the press which dashes, is set to section 112A and set up by the Hidari posterior-horn section of shutter body 112 towards the upper part 112 with 2nd shutter member 120 B is prepared, and the end face of the oblique side section of the shutter body 112 is carried out to press of the 2nd shutter member 120. Furthermore, while sliding along with the peripheral face of base Itabe's 32 cylinder wall 40 on the front end section of the shutter body 112 the circular guide wall 114 which blockades a part of base Itabe's 32 window part 50B for the record reproducing heads (notching part of cylinder wall 40 anterior part) is set up in one towards the upper part, and the circular guide wall 114 corresponded to the periphery of the cylinder wall 40 by plane view -- it is supposed that it is circular.

[0039] Moreover, the overhang section 116 which has the window part 96 which the bottom cut in the right end section of this circular guide wall 114 in the shape of an abbreviation rectangle, and lacked and carried out opening to it is formed in one, and the window part 96 of this overhang section 116 is equivalent to top-face Itabe's 34 window part 70. On the other hand, the shutter cash-drawer sections 118 are formed successively by the left end section of the circular guide wall 114. This shutter cash-drawer section 118 is made into the shape of sheet metal in which the elastic deformation of the thickness direction is possible with thin meat from the circular guide wall 114, and the shutter engagement section 18 of the letter of a small block is attached in that point. Moreover, stoma 118A is prepared in the pars intermedia of the shutter cash-drawer section 118, and it is carried out to the lock pawl 106 engagement mentioned later.

[0040] Moreover, the shutter body 112 of this 1st shutter member 110 is in the condition that the circular guide wall 114 was inserted into top-face Itabe's 34 circular sulcus 68 with base Itabe's 32 cylinder wall 40, and is arranged between base Itabe's 32 crevice 32C, and the top face of inferior-surface-of-tongue Itabe 36. At this time, the point of the shutter cash-drawer section 118 was located in the shutter guide rail, and the shutter engagement section 18 is exposed outside from the puncturing 42 located in the abbreviation center section in 1st guide slot 12A. The circular guide wall 114 slides along with cylinder wall 40 peripheral face by moving the shutter engagement section 18 back by this through the shutter cash-drawer section 118 from the exterior, and the shutter body 112 rotates.

[0041] Moreover, the shutter device is equipped with the locking lever 100 for regulating rotation of the 1st shutter member 110. This locking lever 100 is formed in the shape of an abbreviation "\*\*\*" character by plane view, and the pivot 102 supported by top-face Itabe's 34 boss 58A free [ rotation ] is formed in that center section. And the end section of the locking lever 100 is made into the lock release lever 104 which projects in 1st guide slot 12A from the lock release lever hole 92, and let the other end be the lock pawl 106 which can engage with stoma 118A of the shutter cash-drawer section 118.

[0042] Moreover, the end section of a torsion spring 108 is stopped by the pivot 102 of a locking lever 100, and insertion maintenance of the other end of this torsion spring 108 is carried out at top-face Itabe's 34 maintenance hole 58B. Thereby, a locking lever 100 is always energized by the torsion spring 108 in the direction where the lock pawl 106 engages with stoma 118A of the shutter cash-drawer section 118, and usually maintains the state of obstruction of opening 14 by it. And if the lock release lever 104 is pressed back, the energization force of a torsion spring 108 will be resisted, a locking lever 100 will rotate to the circumference of a pivot 102, and the engagement condition of the lock pawl 106 and stoma 118A of the shutter cash-drawer section 118 will be canceled.

[0043] Moreover, the shutter device is equipped with the 2nd shutter member 120 which mainly blockades base Itabe's 32 hub hole 50A. This 2nd shutter member 120 consists of thin plates, such as resin material and a metal plate, and is formed in abbreviation trapezoidal shape by plane view. And the thickness is made equivalent to the shutter body 112 of the 1st shutter member 110.

[0044] The shutter body 112 of the 1st shutter member 110 dashes this 2nd shutter member 120, the end face of the oblique side section of that front end dashes it as section 112A, and it is referred to as section 120A, and it dashes and pressed piece 120B is set up towards the upper part by this location corresponding to piece of press 112B of the shutter body 112 of section 120A. This pressed piece 120B has the width of face which always contacts piece of press 112B in the rotation range of the shutter body 112 (successive range of piece of press 112B regulated with the shutter guidance hole 62).

[0045] Moreover, the 2nd shutter member 120 is equipped with the rotation shaft 122 set up by the right rear edge towards the upper part. This rotation shaft 122 supports base Itabe's 32 shutter boss 52, and screw-slotting 122A is formed in the upper limit section. This 2nd shutter member 120 is in the condition that pressed piece 120B was inserted into the shutter guidance hole 62, and is arranged between base Itabe's 32 crevice 32C, and the top face of inferior-surface-of-tongue Itabe 36 while the rotation shaft 122 is inserted in base Itabe's 32 shutter boss 52. And by the end section of a torsion spring 124 being stopped by screw-slotting 122A of the rotation shaft 122, and the other end of this torsion spring 124 being stopped by base



Itabe's 32 spring attaching part 56 in this condition, the 2nd shutter member 120 always dashes as the 1st shutter member 110, and is energized by the direction.

[0046] thereby -- the 2nd shutter member 120 -- usually -- the -- dashing -- section 120A -- the 1st shutter member 110 -- dashing -- section 112A -- it dashes, and considers as a condition and base Itabe's 32 hub hole 50A is mainly blockaded in this condition. Moreover, at this time, piece of press 112B of the 1st shutter member 110 and pressed piece 120B of the 2nd shutter member 120 are engaging with the anterior part common-law marriage of base Itabe's 32 shutter guidance hole 62, respectively, and are dashed, and Sections 112A and 120A dash them, and they maintain a condition.

[0047] Next, if an operation of such a disk cartridge 10 is explained, opening 14 is blockaded by the 1st shutter member 110 and the 2nd shutter member 120 at the time of un-using [ of the disk media 20 ] it. That is, as shown in drawing 4, while the 1st shutter member 110 dashes, section 112A and the 2nd shutter member 120 dash, section 120A is dashed mutually, and is contacted and the 1st shutter member 110 mainly blockades base Itabe's 32 window part 50B for the record reproducing heads, the 2nd shutter member 120 mainly blockades base Itabe's 32 hub hole 50A.

[0048] At this time, when the lock pawl 106 of a locking lever 100 engages with stoma 118A of the shutter cash-drawer section 118, the 1st shutter member 110 has rotation of the open direction of opening 14 regulated, and maintains the above-mentioned state of obstruction. On the other hand, by the torsion spring 124, the 2nd shutter member 120 dashes as the 1st shutter member 110, is energized by the direction, and maintains the above-mentioned state of obstruction. Thereby, invasion of the dust into the disk cartridge 10 at the time of un-using [ of the disk media 20 ] it, i.e., adhesion of the dust to the inferior surface of tongue 24 of the disk media 20, is prevented.

[0049] Drive equipment is loaded in case a disk cartridge 10 is used (i.e., when reproducing the information recorded on the time of recording information on the disk media 20, or the disk media 20). In case drive equipment is loaded with a disk cartridge 10, the front end section 10A is made into a head, and it inserts in the insertion opening 200 of drive equipment. Then, the guidance heights 202 of drive equipment are inserted in 1st guide slot 12A of a disk cartridge 10, and 2nd guide slot 12B with this insertion, respectively.

[0050] With the further insertion of a disk cartridge 10, the guidance heights 202 inserted in 1st guide slot 12A are displaced relatively towards the back of 1st guide slot 12A, and press this back in contact with the lock release lever 104 located in 1st guide slot 12A. If the lock release lever 104 is pressed back, while a locking lever 100 will rotate to the circumference of a pivot 102 (boss 58A) and the lock release lever 104 will retreat into the lock release lever hole 92, the engagement condition of the lock pawl 106 and stoma 118A of the shutter cash-drawer section 118 is canceled. Thereby, the lock condition of the 1st shutter member 110 is canceled, and rotation of the 1st shutter member 110 is enabled.

[0051] If the guidance heights 202 of drive equipment are further displaced relatively back in the inside of 1st guide slot 12A, these guidance heights 202 engage with the shutter engagement section 18 located in 1st guide slot 12A, maintaining the above-mentioned lock discharge condition, will turn this back and will press it. If the shutter engagement section 18 is pressed back, the 1st shutter member 110 of which the lock condition was canceled will rotate. That is, it moves back with migration behind the shutter engagement section 18 in the inside of the shutter guide rail to which the shutter cash-drawer section 118 extends in the tangential direction of the cylinder wall 40, and it rotates, the circular guide wall 114 sliding along with the peripheral face of the cylinder wall 40.

[0052] With rotation of this circular guide wall 114, the shutter body 112 of this and one rotates in accordance with the cylinder wall 40, and piece of press 112B moves the inside of the shutter guidance hole 62 to abbreviation back. Then, it moves along with the circular part of the shutter guidance hole 62, pressed piece 120B of the 2nd shutter member 120 by which contact arrangement was carried out with this being pressed to abbreviation back. migration of this pressed piece 120B -- following -- the 2nd shutter member 120 -- the energization force of a torsion spring 124 -- resisting -- the circumference of the rotation shaft 122 -- alienation with the 1st shutter member 110 -- it rotates to a direction.

[0053] And the guidance heights 202 of drive equipment engaging with the shutter engagement section 18, pressing the shutter engagement section 18 back, if it is further displaced relatively back, the inside of 1st guide slot 12A As the 1st shutter member 110 (the shutter body 112 and circular guide wall 114) and the 2nd shutter member 120 rotate further in the mutual direction which it dashes [ direction ] and makes Sections 112A and 120A estrange and are shown in drawing 5 Window part 50for the record reproducing heads B and hub hole 50A are opened wide. In addition, since a window part 96 is located in the anterior part of a disk cartridge 10 at this time, top-face Itabe's 34 window part 70 is also opened wide. In this way,



the opening 14 of a disk cartridge 10 is opened wide.

[0054] Moreover, the positioning device of drive equipment will be inserted in the hole 16 for location regulation, and this disk cartridge 10 will be correctly positioned, if inserted to the predetermined location of drive equipment. Thereby, while insertion beyond it of a disk cartridge 10 becomes impossible, lock out of the opening 14 by the energization force of a torsion spring 124 and migration to the eject direction (insertion opening 200 side) of a disk cartridge 10 are also prevented.

[0055] Subsequently, a rotation spindle shaft is inserted from the part corresponding to hub hole 50A of the opening 14 of which the state of obstruction was canceled. This rotation spindle shaft holds the pin center, large core section 26 of the disk media 20 by engagement, adsorption, etc. in a point, and rotates the disk media 20 to the circumference of that axial center. Moreover, from the part corresponding to window part 50B for the record reproducing heads of opening 14, the information which the record reproducing head was inserted, and recorded information on the recording surface of the disk media 20, or was recorded on the recording surface is reproduced.

[0056] Then, in case a disk cartridge 10 is discharged from drive equipment, a positioning device is extracted from the hole 16 for location regulation, and becomes movable to an eject direction (insertion opening 200 side). In this condition, by the thrust to the eject direction given by the energization force or drive equipment of a torsion spring 124, a disk cartridge 10 makes back end section 10B a head, and moves. Although the guidance heights 202 of drive equipment engage with the shutter engagement section 18 with this migration, the thrust through these guidance heights 202 stops acting, and the 1st shutter member 110 is rotatable.

[0057] In this condition, a disk cartridge 10 blockades opening 14, moving to an eject direction as mentioned above. Namely, it is rotated in the lock out direction of opening 14, the 2nd shutter member 120 pressing piece of press 112B of the 1st shutter member 110 to the abbreviation front in pressed piece 120B according to the energization force of a torsion spring 124. Moreover, the 1st shutter member 110 pressed in piece of press 112B to the abbreviation front is rotated in the lock out direction of opening 14 by this press.

[0058] Opening 14 is blockaded, when the 1st shutter member 110 and the 2nd shutter member 120 rotate, respectively and return to an initial valve position. Piece of press 112B of the 1st shutter member 110 which returned to the initial valve position engages with a shutter guidance hole 62 anterior-part common-law marriage, and prevents rotation beyond it by the energization force of the torsion spring 124 of the 2nd shutter member 120 which contacts piece of press 112B through pressed piece 120B.

[0059] If a disk cartridge 10 is further moved to an eject direction and the guidance heights 202 are moved to the front from the lock release lever hole 92 of 1st guide slot 12A, while a locking lever 100 rotates and the lock release lever 104 projects in 1st guide slot 12A according to the energization force of a torsion spring 108, the lock pawl 106 engages with stoma 118A of the shutter cash-drawer section 118 of the 1st shutter member 110. Thereby, a disk cartridge 10 returns to the condition before loading to drive equipment, rotation of the 1st shutter member 110 is prevented, and the state of obstruction of opening 14 is maintained.

[0060] As mentioned above, as explained, a case 30 is constituted by junction with top-face Itabe 34 and inferior-surface-of-tongue Itabe 36, and since the disk cartridge 10 is constituted so that it may be held in the case 30, base Itabe 32 can become possible [ constituting top-face Itabe 34 and inferior-surface-of-tongue Itabe 36 from an ingredient with a hard polycarbonate etc., for example ], and can raise the reinforcement of the case itself. Therefore, the shock resistance at the time of fall etc. can be raised.

[0061] Moreover, thereby, since 1st guide slot 12A and 2nd guide slot 12B which become the guidance to drive equipment will be prepared in top-face Itabe's 32 existing rigid left wall 86 and rigid right wall 88, they can raise the dimensional accuracy of these 1st guide slot 12A and 2nd guide slot 12B, and can raise the location precision at the time of loading to the drive equipment of a disk cartridge 10.

[0062] Moreover, the cylinder wall 40 can be inserted in a circular sulcus 68, the cylindrical projection 64 and a cylinder 94 can be inserted in bores 44 and 54, respectively, and base Itabe 32 can become possible [ absorbing the dimensional change by few dimension errors, and a temperature change and humidity of base Itabe 32 the very thing ], since it is held without fixing in a case 30, and can raise the moldability of a disk cartridge 10.

[0063] And since what is necessary is only to take into consideration it not being necessary to ask base Itabe 32 for reinforcement in this case, and merely raising the sliding nature of the 1st shutter member 110 and the 2nd shutter member 120 For example, it becomes possible to adopt the high ingredient of slipping nature, such as POM and ABS, and the suitable disk cartridge 10 which suppressed the raising dust by friction with the 1st shutter member 110 and the 2nd shutter member 120, and base Itabe 32, wear, etc. can be obtained.

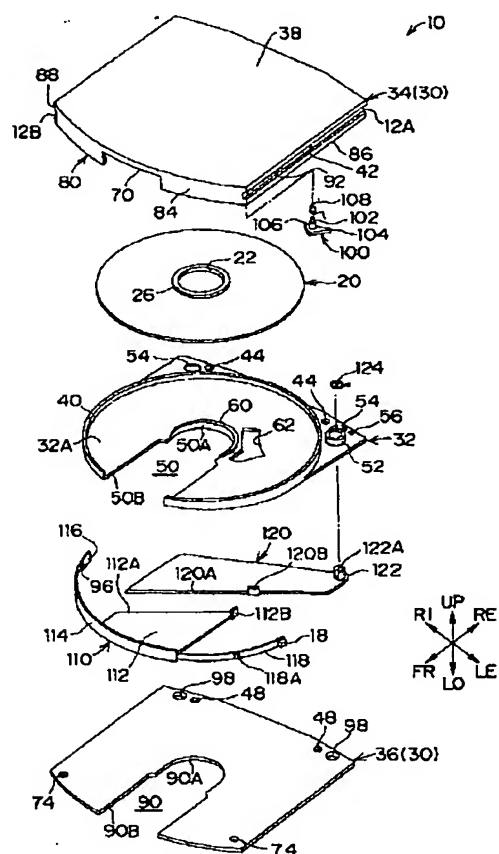
[0064]

[Effect of the Invention] As mentioned above, according to this invention, the shock resistance at the time of fall of a disk cartridge etc. can be raised. Moreover, the sliding nature of a shutter member can be raised and the dimensional change by the dimension error, and a temperature change and humidity of bottom shell can be absorbed further. And the location precision of the disk cartridge at the time of loading to drive equipment can be raised.

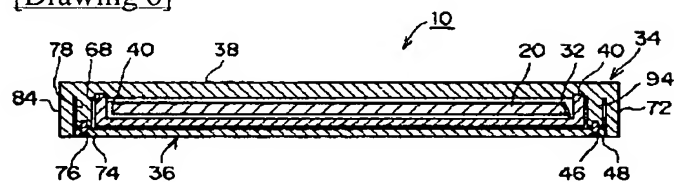
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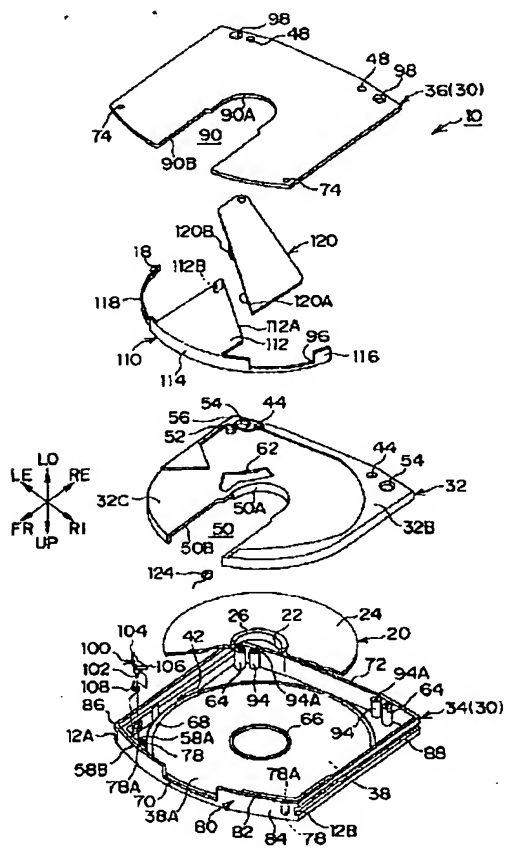




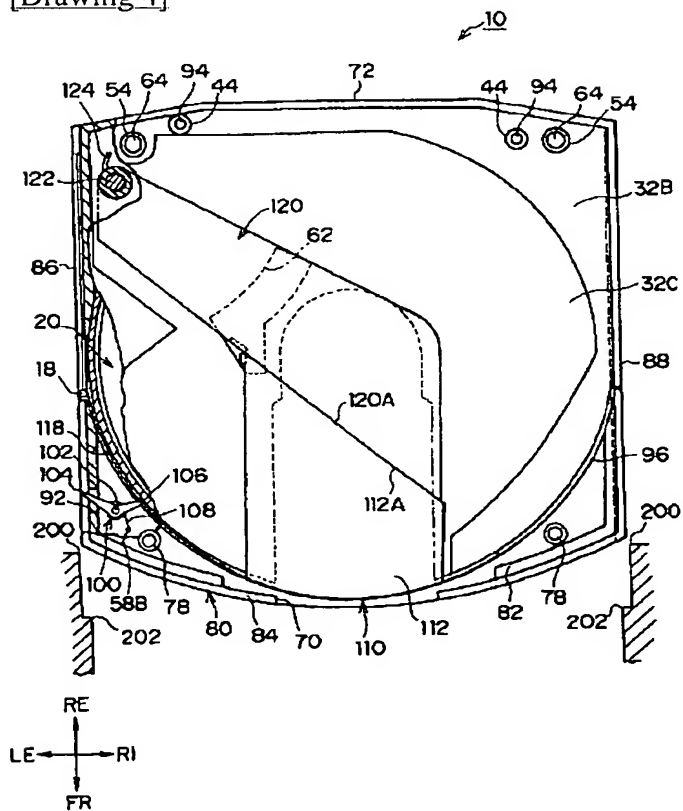
[Drawing 6]



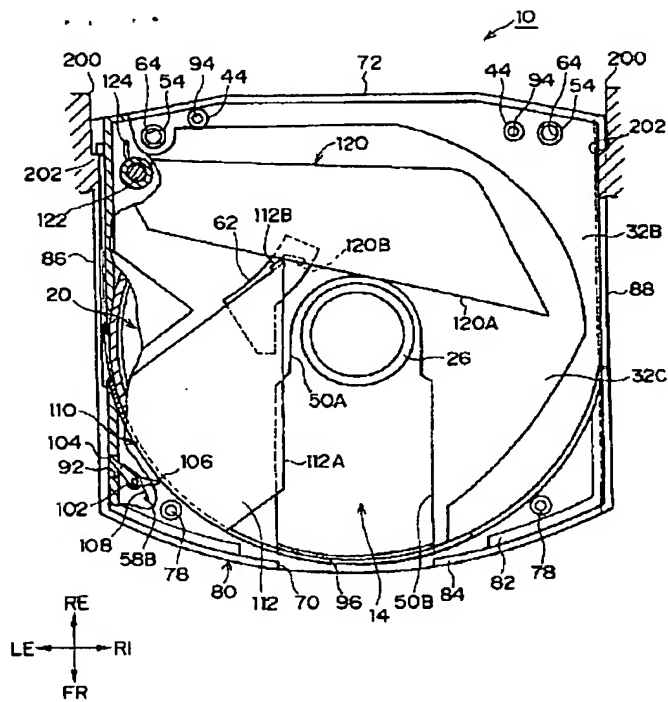
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]

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